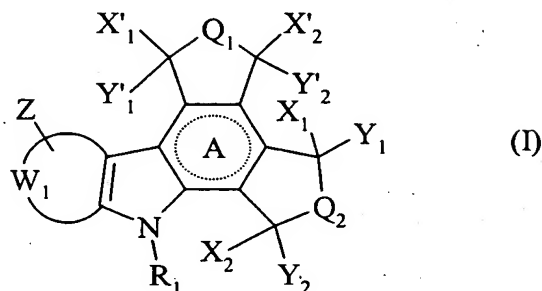


CLAIMS

I-A compound selected from those of formula (I) :



wherein :

- A represents a saturated or partially or fully unsaturated ring, wherein the unsaturation optionally confers an aromatic nature on the ring,
- W₁, together with the carbon atoms to which it is bonded, represents phenyl or pyridyl,
- Z represents one or more identical or different groups of formula U-V wherein :
 - ✓ U represents single bond, linear or branched (C₁-C₆)alkylene, linear or branched (C₂-C₆)alkenyl optionally substituted by one or more identical or different groups selected from halogen and hydroxy, and/or optionally containing one or more unsaturated bonds,
 - ✓ V represents a group selected from hydrogen, halogen, cyano, nitro, azido, linear or branched (C₁-C₆)alkyl, aryl, aryl-(C₁-C₆)alkyl in which the alkyl moiety may be linear or branched, hydroxy, linear or branched (C₁-C₆)alkoxy, aryloxy, aryl-(C₁-C₆)alkoxy in which the alkoxy moiety may be linear or branched, formyl, carboxy, aminocarbonyl, NR₃R₄, -C(O)-T₁, -C(O)-NR₃-T₁, -NR₃-C(O)-T₁, -O-C(O)-T₁, -C(O)-O-T₁, -NR₃-T₂-NR₃R₄, -NR₃-T₂-OR₃, -NR₃-T₂-CO₂R₃, -O-T'₂-NR₃R₄, -O-T'₂-OR₃, -O-T'₂-CO₂R₃, and -S(O)₁-R₃,

wherein :

- ⇒ R₃ and R₄, which may be identical or different, each represents a group selected from hydrogen, linear or branched (C₁-C₆)alkyl, aryl, and aryl-(C₁-C₆)alkyl in which the alkyl moiety may be linear or branched, or

R_3+R_4 , with the nitrogen atom carrying them, together form a saturated monocyclic or bicyclic heterocycle that has from 5 to 10 ring atoms, optionally contains in the ring system a second hetero atom selected from oxygen and nitrogen, and is optionally substituted by a group selected from linear or branched (C_1-C_6) alkyl, aryl, aryl- (C_1-C_6) alkyl in which the alkyl moiety may be linear or branched, hydroxy, linear or branched (C_1-C_6) alkoxy, amino, linear or branched mono- (C_1-C_6) alkylamino, and di- (C_1-C_6) alkylamino in which the alkyl moieties may be linear or branched,

⇒ T_1 represents a group selected from linear or branched (C_1-C_6) alkyl that is optionally substituted by a group selected from $-OR_3$, $-NR_3R_4$, $-CO_2R_3$, $-C(O)R_3$ and $-C(O)NR_3R_4$ wherein R_3 and R_4 are as defined hereinbefore; aryl, and aryl- (C_1-C_6) alkyl in which the alkyl moiety may be linear or branched; or T_1 represents linear or branched (C_2-C_6) alkenyl optionally substituted by a group selected from $-OR_3$, $-NR_3R_4$, $-CO_2R_3$, $-C(O)R_3$ and $-C(O)NR_3R_4$ wherein R_3 and R_4 are as defined hereinbefore,

⇒ T_2 represents linear or branched (C_1-C_6) alkylene,

⇒ T'_2 represents or a linear or branched (C_1-C_6) alkylene optionally substituted with one or more hydroxy groups,

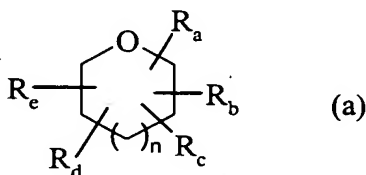
⇒ t represents integer of from 0 to 2 inclusive,

or Z represents methylenedioxy or ethylenedioxy,

- Q_1 represents a group selected from oxygen, NR_2 wherein R_2 represents a group selected from hydrogen, linear or branched (C_1-C_6) alkyl, aryl, aryl- (C_1-C_6) alkyl in which the alkyl moiety may be linear or branched, cycloalkyl, cycloalkyl- (C_1-C_6) alkyl in which the alkyl moiety may be linear or branched, $-OR_3$, $-NR_3R_4$, $-O-T_2-NR_3R_4$, $-NR_3-T_2-NR_3R_4$, linear or branched (C_1-C_6) hydroxyalkylamino, di- $((C_1-C_6)$ hydroxyalkyl)amino in which the alkyl moieties may be linear or branched, $-C(O)-R_3$ and $-NH-C(O)-R_3$; or R_2 represents linear or branched (C_1-C_6) alkylene substituted by one or more identical or different groups selected from halogen, cyano, nitro, $-OR_3$, $-NR_3R_4$, $-CO_2R_3$, $-C(O)R_3$, linear or branched (C_1-C_6) hydroxyalkylamino, di- $((C_1-C_6)$ hydroxyalkyl)amino in which the alkyl moieties may be linear or branched, and $-C(O)-NHR_3$, R_3 , R_4 and T_2 being as defined hereinbefore,

- Q_2 represents a group selected from oxygen, NR'_2 wherein R'_2 represents a group selected from hydrogen, linear or branched (C_1-C_6) alkyl, aryl, aryl- (C_1-C_6) alkyl in which the alkyl moiety may be linear or branched, cycloalkyl, cycloalkyl- (C_1-C_6) alkyl in which the alkyl moiety may be linear or branched, $-OR_3$, $-NR_3R_4$, $-O-T_2-NR_3R_4$, $-NR_3-T_2-NR_3R_4$, linear or branched (C_1-C_6) hydroxyalkylamino, di- $((C_1-C_6)$ hydroxyalkyl)amino in which the alkyl moieties may be linear or branched, $-C(O)-R_3$ and $-NH-C(O)-R_3$; or R'_2 represents a linear or branched (C_1-C_6) alkylene substituted by one or more identical or different groups selected from halogen, cyano, nitro, $-OR_3$, $-NR_3R_4$, $-CO_2R_3$, $-C(O)R_3$, linear or branched (C_1-C_6) hydroxyalkylamino, di- $((C_1-C_6)$ hydroxyalkyl)amino in which the alkyl moieties may be linear or branched, and $-C(O)-NHR_3$, R_3 , R_4 and T_2 being as defined hereinbefore,
- X_1 represents a group selected from hydrogen, hydroxy, linear or branched (C_1-C_6) alkoxy, mercapto, and linear or branched (C_1-C_6) alkylthio,
- Y_1 represents hydrogen, or
- X_1 and Y_1 , with carbon carrying them, together form carbonyl or thiocarbonyl,
- X_2 represents a group selected from hydrogen, hydroxy, linear or branched (C_1-C_6) alkoxy, mercapto and linear or branched (C_1-C_6) alkylthio,
- Y_2 represents hydrogen, or
- X_2 and Y_2 , with carbon carrying them, together form carbonyl or thiocarbonyl,
- X'_1 represents a group selected from hydrogen, hydroxy, linear or branched (C_1-C_6) alkoxy, mercapto and linear or branched (C_1-C_6) alkylthio,
- Y'_1 represents hydrogen, or
- X'_1 and Y'_1 , with carbon carrying them, together form carbonyl or thiocarbonyl,
- X'_2 represents a group selected from hydrogen, hydroxy, linear or branched (C_1-C_6) alkoxy, mercapto and linear or branched (C_1-C_6) alkylthio,
- Y'_2 represents hydrogen, or
- X'_2 and Y'_2 , with carbon carrying them, together form carbonyl or thiocarbonyl,

- **R₁** represents a group selected from hydrogen, linear or branched (C₁-C₆)alkyl that is optionally substituted by one or more groups selected from hydroxy, linear or branched (C₁-C₆)alkoxy, linear or branched (C₁-C₆)hydroxyalkoxy or NR₃R₄, the groups R₃ and R₄ being as defined hereinbefore ; or R₁ represents a group of formula (a) :



wherein :

- ✓ **R_a, R_b, R_c and R_d**, which may be identical or different, each represents, independently of the others, a bond or a group selected from hydrogen, halogen, hydroxy, linear or branched (C₁-C₆)alkoxy, aryloxy, aryl-(C₁-C₆)alkoxy in which the alkoxy moiety may be linear or branched, linear or branched (C₁-C₆)alkyl, aryl-(C₁-C₆)alkyl in which the alkyl moiety may be linear or branched, aryl, -NR₃R₄ wherein R₃ and R₄ are as defined hereinbefore, azido, -N=NR₃ (wherein R₃ is as defined hereinbefore), -O-C(O)-R₅ wherein R₅ represents linear or branched (C₁-C₆)alkyl (optionally substituted by one or more groups selected from halogen, hydroxy, amino, linear or branched (C₁-C₆)alkylamino, and di(C₁-C₆)alkylamino in which the alkyl moieties may be linear or branched); or R₅ represents aryl, aryl-(C₁-C₆)alkyl in which the alkyl moiety may be linear or branched, cycloalkyl or heterocycloalkyl,
- ✓ **R_e** represents methylene (H₂C=) or a group of formula -U₁-R_a wherein U₁ represents single bond, methylene and R_a is as defined hereinbefore,
- ✓ **n** is 0 or 1,

it being understood that the group of formula (a) is bonded to the nitrogen atom by R_a, R_b, R_c, R_d or R_e,

its enantiomers, diastereoisomers, and addition salts thereof with a pharmaceutically acceptable acid or base,

with the proviso that the compound may not be :

- 3b,6a,6b,7-tetrahydro-1*H*-dipyrrolo[3,4-a:3,4-c]carbazole-1,3,4,6-(2*H*,3a*H*,5*H*)-tetrone ;

- 5-ethyl-3b,6a,6b,7-tetrahydro-1*H*-dipyrrolo[3,4-a:3,4-c]carbazole-1,3,4,6-(2*H*,3*aH*,5*H*)-tetrone ;
- 3b,6a,7,11c-tetrahydro-1*H*-dipyrrolo[3,4-a:3,4-c]carbazole-1,3,4,6-(2*H*,3*aH*,5*H*)-tetrone ;
- 5 - 3b,6a,6b,7-tetrahydrofuro[3,4-a]pyrrolo[3,4-c]carbazole-1,3,4,6-(2*H*,3*aH*,5*H*)-tetrone ;

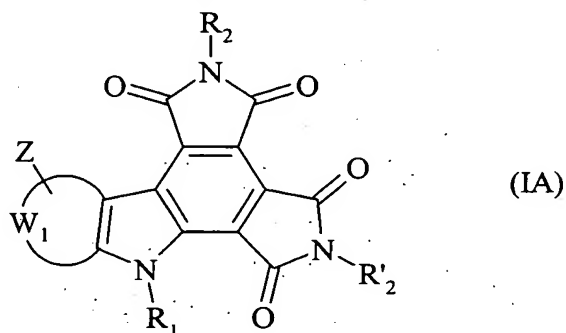
wherein aryl is understood to mean a phenyl, naphthyl, dihydronaphthyl, tetrahydronaphthyl, indenyl or indanyl group, each of those groups optionally being substituted by one or more identical or different groups selected from halogen, linear or branched (C₁-C₆)alkyl, linear or branched (C₁-C₆)trihaloalkyl, hydroxy, linear or branched (C₁-C₆)alkoxy, and NR₃R₄, R₃ and R₄ being as defined hereinbefore.

2- A compound of claim 1, wherein X₁ and Y₁, with carbon carrying them, together form carbonyl, X₂ and Y₂, with carbon carrying them, together form carbonyl, X'₁ and Y'₁, with carbon carrying them, together form carbonyl and X'₂ and Y'₂, with carbon carrying them, together form carbonyl.

15 3- A compound of claim 1 wherein Q₁ represents -NR₂ wherein R₂ is as defined for formula (I).

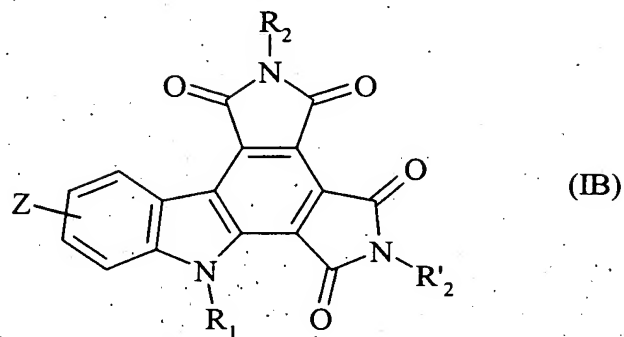
4- A compound of claim 1 wherein Q₂ represents -NR'₂ wherein R'₂ is as defined for formula (I).

5- A compound of claim 1 which is a compound of formula (IA) :



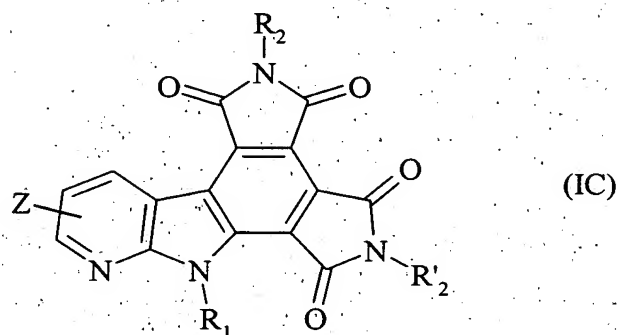
wherein R₁, R₂, R'₂, W₁ and Z are as defined for formula (I).

6- A compound of claim 1 which is a compound of formula (IB) :



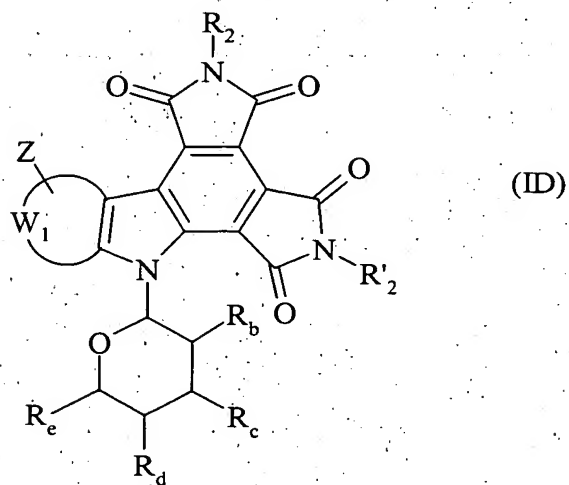
wherein R_1 , R_2 , R'_2 and Z are as defined for formula (I).

7-A compound of claim 1 which is a compound of formula (IC) :



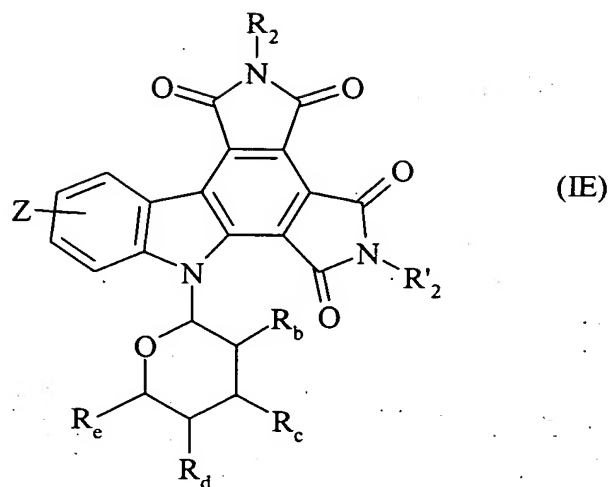
wherein R_1 , R_2 , R'_2 and Z are as defined for formula (I).

8- A compound of claim 1 which is a compound of formula (ID) :



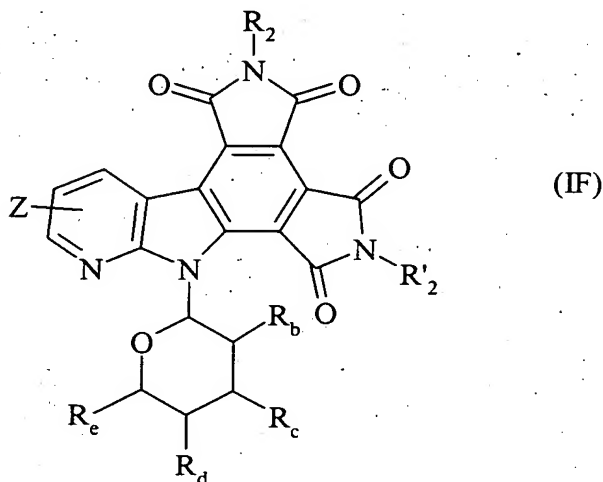
wherein R_2 , R'_2 , W_1 , Z , R_b , R_c , R_d and R_e are as defined for formula (I).

9- A compound of claim 1 which is a compound of formula (IE) :



wherein R_2 , R'_2 , Z , R_b , R_c , R_d and R_e are as defined for formula (I).

10- A compound of claim 1 which is a compound of formula (IF) :



5 wherein R_2 , R'_2 , Z , R_b , R_c , R_d and R_e are as defined for formula (I).

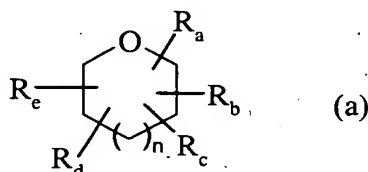
11-A compound of claim 1 wherein Z represents a group of formula U-V wherein U represents single bond and V represents a group selected from hydrogen, halogen, nitro, linear or branched (C_1-C_6) alkyl, hydroxy, linear or branched (C_1-C_6) alkoxy, aryl- (C_1-C_6) alkoxy in which the alkoxy moiety may be linear or branched, NR_3R_4 wherein R_3 and R_4 each represents a hydrogen atom.

10

12-A compound of claim 1 wherein Z represents a group of formula U-V wherein U represents single bond and V represents a group selected from hydrogen, halogen, hydroxy,

aryl-(C₁-C₆)alkoxy in which the alkoxy moiety may be linear or branched.

13-A compound of claim 1 wherein R₁ represents hydrogen, linear or branched (C₁-C₆)alkyl or a group of formula (a) :



5 bonded to the nitrogen atom by R_a,
wherein :

- R_b, R_c, and R_d represent hydroxy, aryl-(C₁-C₆)alkoxy in which the alkoxy moiety may be linear or branched, -O-C(O)-R₅ wherein R₅ represents linear or branched (C₁-C₆)alkyl,
- R_e represents a group of formula U₁-R_a wherein U₁ represents methylene and R_a has the same definitions as R_b, R_c and R_d and n is 0,

14-A compound of claim 1 wherein R₁ represents hydrogen.

15-A compound of claim 1 wherein R₂ represents hydrogen, linear or branched (C₁-C₆)alkyl, OR₃, NR₃R₄, or linear or branched (C₁-C₆)alkylene substituted by OR₃, NR₃R₄ wherein R₃ and R₄ are as defined for formula (I).

16- A compound of claim 1 wherein R₂ represents hydrogen, linear or branched (C₁-C₆)alkyl, linear or branched (C₁-C₆)alkylene substituted by NR₃R₄ wherein R₃ and R₄ are as defined for formula I.

17- A compound of claim 1 wherein R'₂ represents hydrogen, linear or branched (C₁-C₆)alkyl, linear or branched (C₁-C₆)alkylene substituted by NR₃R₄ wherein R₃ and R₄ are as defined for formula (I).

18- A compound of claim 1 which is selected from :

- 1*H*-dipyrrolo[3,4-*a*:3,4-*c*]carbazole-1,3,4,6(2*H*,5*H*,7*H*)-tetrone,
- 2-methyl-1*H*-dipyrrolo[3,4-*a*:3,4-*c*]carbazole-1,3,4,6(2*H*,5*H*,7*H*)-tetrone,
- 2,5-dimethyl-1*H*-dipyrrolo[3,4-*a*:3,4-*c*]carbazole-1,3,4,6(2*H*,5*H*,7*H*)-tetrone,
- 2-[2-(diethylamino)ethyl]-5-methyl-1*H*-dipyrrolo[3,4-*a*:3,4-*c*]carbazole-
5 1,3,4,6(2*H*,5*H*,7*H*)-tetrone,
- 10-hydroxy-1*H*-dipyrrolo[3,4-*a*:3,4-*c*]carbazole-1,3,4,6(2*H*,5*H*,7*H*)-tetrone,

19- A method for treating a living body afflicted with cancer comprising the step of administering to the living body an amount of a compound of claim 1, which is effective for alleviation of said cancer

10 **20**- A pharmaceutical composition useful in treating cancer comprising as active principle an effective amount of a compound as claimed in claim 1, together with one or more pharmaceutically acceptable excipients or vehicles.